

CLAIMS

1. A method of creating a liquid developer with improved conductivity comprising:
dissolving a solid charge adjuvant in a carrier liquid aided by heating the carrier liquid;
5 then mixing the dissolved charge adjuvant with a thermoplastic resin and carrier liquid;
grinding the mixture to form toner particles; and
adding a charge director to charge the toner particles.
2. A method according to claim 1 wherein mixing and grinding comprises:
10 mixing the thermoplastic resin with carrier liquid;
heating the mixture of carrier liquid and thermoplastic resin to plasticize the resin;
cooling the plasticized resin;
adding the dissolved charged adjuvant to the cooled plasticized resin;
grinding the mixture of charge adjuvant and plasticized resin to form toner particles.
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3. A method according to claim 1 wherein mixing and grinding comprises:
mixing the thermoplastic resin with carrier liquid and dissolved charged adjuvant at an
elevated temperature;
cooling the mixture;
20 grinding the cooled mixture to form toner particles.
4. A method according to any of the preceding claims, comprising adding a colorant.
5. A method according to claim 4 wherein the colorant is a pigment.
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6. A method according to any of the preceding claims, wherein said charge adjuvant is a
metallic soap.
7. A method according to claim 6 wherein the metallic soap is an aluminum soap.
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8. A method according to claim 6, wherein said metallic soap comprises an aluminum
stearate

9. A method according to claim 7 wherein the aluminum stearate comprises aluminum tri-stearate.

10. A method according to any of the preceding claims, wherein said dissolving is aided by
5 heating to a temperature exceeding 120°C.

11. A method according to claim 1, wherein said dissolving is aided by heating to a temperature exceeding 130°C.

10 12. A method according to any of claims 1-10, wherein said dissolving is aided by heating to a temperature of no greater than 130°C.

13. A method according to any of the preceding claims wherein and including cooling the dissolved charge adjuvant to a temperature below 60°C, prior to mixing it with the polymer.

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14. A method according to any of the preceding claims wherein the charge adjuvant has only limited solubility in the carrier liquid at 25°C.

20 15. A method according to any of the preceding claims wherein the charge adjuvant is substantially insoluble in the carrier liquid at 25°C.

25 16. A method according to any of the preceding claims wherein the charge adjuvant does not dissolve in the carrier liquid at a temperature at which it is mixed with the polymer, but remains dissolved therein, when dissolved therein at said mixing temperature, when dissolved at a higher temperature.

17. A method according to any of the preceding claims wherein the charge adjuvant does not substantially dissolve in the carrier liquid at 40°, but remains dissolved therein, when dissolved at a higher temperature.

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18. A method according to any of the preceding claims wherein the charge adjuvant does not substantially dissolve in the carrier liquid at 60°, but remains dissolved therein, when dissolved at a higher temperature.

19. A method according to any of the preceding claims wherein dissolving includes adding a surfactant to the solution of carrier liquid and charge adjuvant.

20. A method according to any of the preceding claims wherein said mixing and grinding
5 are performed in a same vessel.

21. A method according to claim 20 wherein said mixing and grinding are performed in a grinder or an attritor.

10 22. A method according to any of claims 1-19 wherein said mixing is performed in a first vessel and wherein said grinding is performed in a second vessel.

23. A method according to claim 22 wherein said mixing is performed in a mixer without grinding media.

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24. A method according to claim 21 or claim 22 wherein said grinding is performed in a grinder or an attritor.